

*A Revision of the Lizards of the Genus Tachydromus.*

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[With plates XLVI and XLVII].

INTRODUCTION.

The species of *Tachydromus*, a genus of Lacertidæ characteristic of the Far East, and the only one of the family to extend eastward of the Bay of Bengal, are much in need of revision. A number have been described since the publication of the third volume of the British Museum Catalogue of Lizards, in which, owing to insufficient material, I united several that have since proved to be perfectly valid. The importance to be attached to various characters, such as the number of rows of plates along the back and belly, of inguinal pores, and of chin-shields, has often been exaggerated and has led to the establishment of species which seem to be untenable. My object in giving very detailed descriptions, with notes on individual variations, accompanied by tabulations of the numerical characters in the extensive material now at my disposal,<sup>1</sup> is to convey a clearer view of the state of things and thus to enable future workers to form a more correct idea of the value to be attached to these characters. I trust to have succeeded in avoiding the two extremes into which previous authors have fallen, viz. of over-multiplying species and of underrating the importance of certain modifications which may appear trivial at first.

Although generally averse to the multiplication of generic divisions, I feel compelled to propose two new genera for species previously described under *Tachydromus*, viz. *T. dorsalis*, Stejneger, and *T. kuehnei*, Van Denb., the former differing in the more normal dorsal lepidosis, the latter in the form of the digits, unique in the family Lacertidæ.

I have also to offer a suggestion as to the exact relationship of *Tachydromus*, which has been regarded as occupying a very isolated position in the family to which it belongs. The northern species *T. amurensis*, Peters, shows it to be much nearer to *Lacerta* than was hitherto believed, as I explain in my comments on that species, which differs so much from *T. sexlineatus*, Daud., the type of the genus, and stands at the other end of the series.

**Tachydromus**, Daud.

*Tachydromus*,<sup>2</sup> Daud. Hist. Rept. iii, p. 251 (1802); Wagl. Syst. Amph., p. 157 (1830); Wiegman. Herp. Mex., p. 10 (1834); Dum. et Bibr. Exp. Gén., v, p. 155 (1839); Gray, Cat. Liz., p. 52 (1845); Günth. Rept. Brit. Ind., p. 69 (1864); Lataste, Ann. Mus. Genova (2) ii, 1885, p. 125; Boulenger, Cat. Liz., iii, p. 3 (1887), and Faun. Ind., Rept., p. 168 (1890).

*Tachysaurus*, Gray, l.c.

<sup>1</sup> 158 specimens, from a great variety of localities.

<sup>2</sup> Originally *Takydromus*, contrary to classical usage.

Head shields normal.<sup>1</sup> Nostril pierced between the nasal, one or two post-nasals, and the first upper labial. Lower eyelid scaly. Collar more or less distinct or absent. Back with large plate-like subimbricate scales with strong keels forming continuous lines; sides with small juxtaposed or granular scales; ventral plates more or less imbricate, often pointed and keeled. Digits cylindrical or slightly compressed, with smooth or somewhat tubercular lamellæ inferiorly. Femoral pores reduced to one<sup>2</sup> to three. Tail long or extremely long, cylindrical.

Eastern Asia.

The parietal foramen is constantly present and pterygoid teeth are absent or reduced to 2 to 5.

The term 'inguinal pores' has been universally used for the one or two pores on each side of the præanal region, as is the rule in this genus, and no exception could be taken to this terminology were it not that when more than two pores are present, the series extends on to the thigh. As the single pore is part of the series known as femoral pores in the other Lacertidæ it is more logical, in view of securing a uniform terminology, to discard the term 'inguinal' and to express the state of things in *Tachydromus* by saying that the series of femoral pores is reduced to one to three. In several forms of *Lacerta* and *Latastia*, when the number of femoral pores falls very low, the reduction takes place from the distal end of the thigh, thus leading to the condition in *Tachydromus*, as specimens of *Lacerta vivipara* and *Latastia longicaudata* with only five femoral pores show very clearly. It is also noteworthy that in the African analogue of *Tachydromus*, *Poromera*, Blgr., the series of femoral pores, though a long one, ends at some distance from the knee-joint.

#### SYNOPSIS OF THE SPECIES.

I. Head not more than  $1\frac{3}{4}$  times as long as broad.

A. 4 supraoculars, first very small (rarely absent); dorsal plates in 5 to 8 longitudinal series, ventrals in 8 or 10.

i. 4 or 5 pairs of chin-shields (very rarely 3); ventral plates in 8 longitudinal series, feebly keeled or all except the outer smooth; 29 to 40 plates and scales round middle of body.

Dorsal plates in 7 or 8 longitudinal series; ventral plates in 22 to 28 transverse series; 3 femoral pores on each side; rostral in contact with frontonasal; tail  $1\frac{3}{5}$  to  $2\frac{1}{5}$  times length of head and body . . .

1. *T. amurensis*, Peters.

Dorsal plates in 5 to 7 longitudinal series; ventral plates in 22 to 25 transverse series; 2 (very rarely 3) femoral pores on each side; rostral nearly always in

<sup>1</sup> i.e. a frontonasal, a pair of præfrontals, a frontal, a pair of frontoparietals, a pair of parietals, an interparietal, and an occipital.

<sup>2</sup> Inguinal pore.

- contact with frontonasal ; tail 2 to  $3\frac{1}{3}$  times length  
of head and body .. .. . 2. *T. tachydromoides*,  
Schleg.
- Dorsal plates in 8 longitudinal series ; ventral plates  
in 27 to 29 transverse series ; a single femoral pore  
on each side ; nasals in contact behind rostral .. 3. *T. wolteri*, J. G. Fisch.  
2. 3 pairs of chin-shields (very rarely 4) ; ventral  
plates keeled, often strongly ; 33 to 48 plates  
and scales round middle of body.
- Dorsal plates in 5 to 7 (rarely 8) longitudinal series ;  
ventral plates in 8 longitudinal and 20 to 30 (usually  
26 to 28) transverse series ; a single femoral pore  
on each side .. . . . 4. *T. septentrionalis*,  
Gthr.
- Dorsal plates in 7 or 8 longitudinal series ; ventral  
plates in 8, more frequently 10, longitudinal and 27  
to 33 transverse series ; 1 or 2 femoral pores on each  
side. .. .. . 5. *T. formosanus*, Blgr.  
B. 3 supraoculars, first large and in contact with  
the second loreal ; dorsal plates in 4 longitudinal  
series, ventrals in 12.
- Ventral plates in 22 to 25 transverse series ; 26 to 28  
plates and scales round middle of body ; 3 pairs of  
chin-shields ; 2 or 3 femoral pores on each side ; tail  
a little over twice length of head and body .. 6. *T. khasiensis*, Blgr.
- II. Head at least nearly twice as long as broad ; ven-  
tral plates strongly keeled.
- A. Dorsal plates in 7 to 10 longitudinal series ; ven-  
tral plates in 6 or 8 longitudinal and 26 to 31  
transverse series ; a single femoral pore on each  
side.  
37 to 45 plates and scales round middle of body ; 3  
pairs of chin-shields, rarely 4 ; 3 or 4 supraoculars ;  
tail  $2\frac{1}{2}$  to  $3\frac{1}{3}$  times length of head and body .. 7. *T. smaragdinus*, Blgr.
- 28 to 32 plates and scales round middle of body ; 4 or  
5 pairs of chin-shields ; 4 supraoculars ; tail  $3\frac{1}{2}$  to 4  
times length of head and body .. .. . 8. *T. sauteri*, Van Denb.  
B. Dorsal plates in 4 or 6 longitudinal series, ven-  
trals in 10 or 12 ; 28 to 38 plates and scales  
round middle of body ; 3 supraoculars, third  
rarely in contact with frontoparietal ; 1 to 3  
femoral pores on each side.
- Dorsal plates in 4 (rarely 6) longitudinal series, ventrals



in 21 to 28 transverse series; 3 (rarely 4) pairs of chin-shields; collar more or less distinct; head about twice as long as broad; tail 3 to 5 times length of head and body . . . . .

9. *T. sexlineatus*, Daud.

Dorsal plates in 6 longitudinal series, ventrals in 30 transverse series; 4 pairs of chin-shields; no trace of a collar; head  $2\frac{1}{3}$  times as long as broad; tail  $2\frac{2}{5}$  times as long as head and body . . . . .

10. *T. haughtonianus*,  
Jerd.

### 1. *Tachydromus amurensis*.

*Tachydromus amurensis*, Peters, Sitzb. Ges. Naturf. Fr. Berl. 1881, p. 71; Bouleng. Cat. Liz., iii, p. 6 (1887); Günth. Ann. and Mag. N.H. (6) i, 1888, p. 169; Bouleng. Ann. and Mag. N.H. (6) v, 1890, p. 137; Nikolsky, Herp. Ross., p. 92 (1905); Stejneger, Herp. Japan, p. 245 fig. (1907).

Body feebly depressed. Head about  $1\frac{1}{2}$  times as long as broad, its depth equal to the distance between the anterior corner of the eye and the tympanum, its length  $3\frac{3}{4}$  to 4 times in length to vent in males,  $4\frac{1}{2}$  to  $4\frac{2}{3}$  times in females; snout obtuse, with obtuse canthus, as long as or slightly shorter than the postocular part of the head. Pileus  $1\frac{3}{4}$  to 2 times as long as broad. Neck as broad as the head. Limbs short; the hind limb reaches the elbow or the axil in males, barely the wrist in females; foot as long as the head or slightly longer. Tail  $1\frac{5}{5}$  to a little over 2 times the length of head and body.

Nostril pierced between three shields. Rostral not touching the nostril, broadly in contact with the frontonasal, which is broader than long and as broad as the interaural space; præfrontals forming a median suture or separated by a small azygous shield;<sup>1</sup> frontal as long as its distance from the end of the snout,  $1\frac{1}{4}$  to  $1\frac{1}{2}$  times as long as broad, of nearly equal width throughout, or narrower behind than in front; parietal a little longer than broad (not more than  $1\frac{1}{4}$ ), in contact with the upper postocular and with 3 or 4 temporals; interparietal a little longer than broad; occipital much shorter than the interparietal, its posterior border usually convex and projecting beyond the parietals. 4 supraoculars, first very small, sometimes divided into two, or in contact with the frontal, second and third equal or second the longer, fourth small but larger than the first, sometimes not in contact with the frontoparietal;<sup>2</sup> 4, rarely 3 or 5, superciliaries, first longest, all in contact with the supraoculars, or with 2 or 3 granules between them. Nasal forming a suture with the anterior loreal<sup>3</sup> above the small postnasal; posterior loreal longer than the anterior; 4 upper labials<sup>4</sup> anterior to the subocular, which is narrower beneath than above, sometimes very slightly. Temporal scales small, smooth or feebly keeled; tympanic shield present; one or two enlarged upper temporals often present.

4, rarely 5<sup>5</sup>, pairs of chin-shields, the two or three anterior meeting in the middle; 19 to 24 gular scales in a straight line between the symphysis of the chin-

<sup>1</sup> In a male from Chabarovka.

<sup>2</sup> In a female from Chabarovka.

<sup>3</sup> Which is divided into two in a male from Chabarovka.

<sup>4</sup> 5 on one side in a male from Chabarovka.

In a female from Chabarovka.



shields and the median collar-plate, anterior granular and smooth, posterior enlarged, imbricate, smooth or faintly keeled, and merging gradually into the collar, which is composed of 8 to 11 rounded or obtusely pointed plates, the median smooth, the outer feebly keeled.

Dorsal plates obtusely pointed or rounded behind, in 6 longitudinal series, with 1 or 2 smaller plates on the median line, or in 8 series in front and 6 behind; sides with one upper and 3 or 4 lower series of keeled scales and a median granular area. Ventral plates in 8 longitudinal and 22 to 28 transverse series, the outer pointed and feebly keeled, the others smooth, broader than long and shaped as in *Lacerta vivipara* 30 to 40 plates and scales round the middle of the body. Præanal plate large, smooth, entire (males) or longitudinally divided or semidivided (females), bordered by one semicircle of small plates.

Upper surface of limbs with rhombic keeled scales, much smaller than the dorsals. 3 femoral pores on each side.<sup>1</sup> Subdigital lamellæ single or partly single and partly divided, 19 to 23 under the fourth toe.

Caudal scales strongly keeled, pointed or shortly mucronate, in somewhat longer and shorter whorls alternately, the fourth or fifth of which contains 16 to 20 scales. The scaling of the regenerated tail similar to that of *Lacerta vivipara*.

Brown or olive-grey above, uniform or with irregular dark brown spots; sides with a broad dark brown or black band, the upper border of which may show a series of indentations; a dark streak on the canthus rostralis; usually a more or less distinct light, dark-edged streak from the lower eyelid to the shoulder, passing through the lower part of the ear-opening, sometimes continued as a series of spots to the base of the hind limb. Lower parts yellowish or greenish white.

Measurements, in millimetres.				1.	2.	3.	4.
From end of snout to vent	..	..	..	55	53	66	65
" " " " " fore limb	..	..	..	20	19	—	21
Head	..	..	..	12	12	13	14
Width of head	..	..	..	8	8	9	9
Depth of head	..	..	..	6	6	—	7
Fore limb	..	..	..	19	19	20	20
Hind limb	..	..	..	25	27	27	27
Foot	..	..	..	12	14	—	14
Tail	..	..	..	117	—	—	—

1. ♂, Chabarovka. 2. ♂, Seoul. 3. ♀, Kasakewicha (type). 4. ♀, Chabarovka.

*Particulars of specimens examined.*<sup>2</sup>

	1.	2.	3.	4.	5.	6.	7.	8.	9.		
♂, Chabarovka, Ussuri	..	..	55	35	7	8	26	8	22	3	20
" " "	..	..	54	35	7	8	25	10	22	3	21
♀, " "	..	..	65	40	8	8	28	9	24	3	23
" " "	..	..	65	33	7	8	27	9	19	3	22
♂, Seoul, Corea	..	..	53	35	7	8	24	10	21	3	23
♀, Corea	..	..	50	30	8	8	22	10	22	3	19

<sup>1</sup> A female from Chabarovka shows an ill-defined fourth pore on the right side.

<sup>2</sup> In addition to these I have examined the type, a female from Kasakewicha, on the Amoor, preserved in the Berlin Museum.

1. Length from snout to vent (in millimetres). 2. Scales and plates round middle of body. 3. Longitudinal series of dorsal plates and scales. 4. Longitudinal series of ventral plates. 5. Transverse series of ventral plates. 6. Plates in collar. 7. Gular scales in straight median line. 8. Femoral pores on each side. 9. Lamellar scales under fourth toe.

Habitat. South-Eastern Siberia, Manchuria, Corea.

*T. amurensis* is the most *Lacerta*-like species of the genus, and its agreement in many respects with *L. vivipara*<sup>1</sup> is the more noteworthy for the fact that the latter is the only species of *Lacerta* which extends eastward to the Pacific Ocean.<sup>2</sup> The agreement is not only in the form of the head and the comparatively short tail, but also in the shape and arrangement of the head-shields, especially those bordering the nostril, and the occasional separation of the fourth supraocular from the frontoparietal,<sup>3</sup> and of the ventral shields. As the scaling of the back and the coloration may very well be derived from the condition in *L. vivipara*, I have little doubt that the genus *Tachydromus* is to be regarded as directly modified from an oriental species of *Lacerta* connected with *L. vivipara*, if not from that species itself.

## 2. *Tachydromus tachydromoides*, Schleg.

*Lacerta tachydromoides*, Schleg. Faun. Japon., Rept., p. 101, pl. i, figs. 5-7 (1838).

*Tachydromus japonicus*, Dum. et Bibr. Exp. Gén. v, p. 161 (1839); Günth. Rept. Brit. Ind., p. 69 (1864); Hilgend. Sitzb. Ges. Nat. Fr. Berl., 1880, p. 112.

*Tachysaurus japonicus*, Gray, Cat. Liz., p. 52 (1845).

*Tachydromus tachydromoides*, part., Bouleng. Cat. Liz., iii, p. 5 (1887).

*Tachydromus tachydromoides*, Günth. Ann. and Mag. N.H. (6) i, 1888. p. 169; Stejneger. Herp. Japan, p. 247, fig. (1907).

*Tachydromus holsti*, Bouleng. Proc. Zool. Soc., 1894, p. 733, pl. xlix, fig. 1.

Body feebly depressed. Head  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as broad, its depth equal to the distance between the anterior corner of the eye and the tympanum, its length  $3\frac{2}{3}$  to 4 times in length to vent in males, 4 to  $4\frac{1}{2}$  times in females; snout pointed, with strong canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus  $1\frac{1}{3}$  to 2 times as long as broad. Neck as broad as the head. The hind limb reaches the axil, the shoulder, or the collar in males, the wrist, the elbow, or the axil in females; foot 1 to  $1\frac{1}{3}$  times as long as the head. Tail 2 to  $3\frac{1}{3}$  times the length of head and body ( $1\frac{2}{3}$  times in the very young).

Nostril pierced between three shields. Rostral not entering the nostril, nearly always in contact with the frontonasal<sup>4</sup>, usually broadly; frontonasal as long as broad or slightly broader, as broad as the internarial space or a little broader; præfrontals forming a median suture;<sup>5</sup> frontal as long as its distance from the end of the snout,  $1\frac{1}{2}$  to 2 times as long as broad, usually narrower behind than in front; parietals as long as broad or a little longer than broad (up to  $1\frac{1}{3}$ ), interparietal  $1\frac{1}{3}$  to 2 times as long as broad; occipital small, much shorter than the interparietal, often

<sup>1</sup> I have therefore represented details of that species on plate XLVI for comparison with *T. amurensis*.

<sup>2</sup> The Easternmost specimens show, on an average, a lower number of pores (5 to 11) than the Western.

<sup>3</sup> A character which has become fixed in *T. sexlineatus*, at the other end of the series.

<sup>4</sup> Two exceptions, male from Koshikeu and female from Koyosun, in which the nasals meet behind the rostral.

<sup>5</sup> Sometimes separated by a small azygos shield, according to Stejneger.

separated from it by the parietals meeting in the middle, sometimes reduced to a granule. 4 supraoculars, first very small, rarely in contact with the frontal,<sup>1</sup> second and third equal or second the larger, fourth small but larger than the first; 4, rarely 5, superciliaries, first or first and second longest; a complete or, more often, incomplete series of granules between the supraoculars and the superciliaries, exceptionally reduced to 2 or 3 granules. Nasal forming a suture with the anterior loreal, above the small postnasal;<sup>2</sup> anterior loreal shorter than the second; 4 upper labials, rarely 3<sup>3</sup>, anterior to the subocular, which is narrower beneath than above. Temporal scales small, more or less distinctly keeled; 2 or 3 enlarged upper temporals, the first not in contact with the fourth supraocular; tympanic shield present.

4 pairs of chin-shields,<sup>4</sup> the two or three anterior meeting in the middle; 18 to 25 gular scales between the symphysis of the chin-shields and the median collar-plate, anterior granular, smooth, posterior enlarged, imbricate, pointed, smooth or more frequently feebly keeled and merging gradually into the collar, which is composed of 9 to 12 pointed, smooth or keeled plates.

Dorsal plates obtusely pointed or rounded behind, in 4 or 6 longitudinal series, with 1 or 2 series of smaller plates on the median line, making 5 to 7 series altogether; sides with one upper and 3 to 6 lower series of keeled scales and a median granular area. Ventral plates in 8 longitudinal and 22 to 25 transverse series, the outer pointed and keeled, the others also pointed, or rounded or truncate behind, smooth or feebly keeled. 29 to 35 plates and scales round the middle of the body. Præanal plate large, smooth, very rarely longitudinally divided,<sup>5</sup> bordered by one semicircle of small plates.

Upper surface of limbs with rhombic keeled scales, much smaller than the dorsals. 2, very rarely 3, femoral pores on each side. Subdigital lamellæ mostly divided, 20 to 26 under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, in somewhat longer and shorter whorls alternately, the fourth or fifth of which contains 14 to 20 scales.

Brown or olive above, sometimes greenish on the anterior part of the back, uniform or with small irregularly scattered blackish spots; sometimes a light dorso-lateral streak, starting from the superciliary edge; usually a dark brown or blackish lateral band<sup>6</sup> from behind the eye, sometimes with a few light spots, the upper edge often crenulated; a dark streak on the canthus rostralis; a more or less distinct light or white streak, often black-edged, from the lower eyelid to the shoulder, through the lower part of the ear-opening, sometimes continued as a streak or series of spots to the base of the hind limb. Lower parts white, throat and breast sometimes greenish. Tail pale brown or reddish, with a dark lateral streak.

<sup>1</sup> Absent on one side in a female (Lataste collection).

<sup>2</sup> The postnasal is absent and the first loreal transversely divided into two in a female from Tokyo.

<sup>3</sup> 3 on both sides in a female from Tsu Shima, on one side in a female from Takanori.

<sup>4</sup> One exception with 3 and one with 5 out of 66 specimens examined by Stejneger. 3 on one side and 4 on the other in the type of *T. holsti*.

<sup>5</sup> Female from Nagasaki.

<sup>6</sup> This band is totally absent in the types (female and young) of *T. holsti*, as well as in a female from Nagasaki.



Measurements, in millimetres.				1.	2.	3.	4.
From end of snout to vent	..	..	..	62	57	62	59
" " " " " fore limb	..	..	..	22	21	22	21
Head	..	..	..	15	14	14	13
Width of head	..	..	..	9	9	9	8
Depth of head	..	..	..	8	7	7	7
Fore limb	..	..	..	23	20	20	19
Hind limb	..	..	..	33	32	28	28
Foot	..	..	..	17	17	15	15
Tail	..	..	..	180	160	150	150

1. ♂, Nagasaki. 2. ♂, Kochi Ken. 3. ♀, Japan (Lataste Coll.). 4. ♀, Myianoshita.

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.
♀, Kiusiu, type	59	32	6	8	24	10	20	2	25
♂, Nagasaki, Kiusiu	62	35	6	8	22	11	25	2	25
♀, " " "	50	33	6	8	24	10	24	2	26
♂, Takamori, " "	46	34	5	8	22	10	20	2	20
♀, " " "	41	33	6	8	25	9	20	2	23
♂, Moje, " "	50	32	6	8	24	12	23	2	24
♀, Onsen Mt., Shimabara, Kiusiu (type of <i>T. holsti</i> ).	47	32	6	8	23	10	19	2	22
♂, Tsu Sima	60	34	6	8	24	11	24	2	23
" " "	53	34	6	8	23	10	22	2	23
♀, " " "	44	29	5	8	25	9	20	2	22
♂, Koshi Ken, Shikoka	57	29	5	8	22	11	21	2	23
" " " "	52	35	5	8	23	11	24	3	26
♀, Tokyo, Hondo	54	32	6	8	26	11	23	2	23
" " "	43	30	6	8	24	11	18	2	20
♂, L. Hakone, "	57	34	6	8	24	10	19	2	24
♀, Myianoshita, "	59	33	6	8	24	10	18	2	22
" Koyosun, "	54	32	6	8	25	9	25	2	24
♂, Japan (Lataste Coll.)	54	35	7	8	22	9	24	2	24
♀ " " "	44	33	5	8	23	9	21	2	23
" " " "	62	33	7	8	25	11	23	2	24

Explanation of table same as for the preceding species, p. 212.

Habitat. Japan, from Yezo to Kiusiu and Tsu Sima.

This species is very closely allied to the preceding, differing in the more pointed snout with stronger canthus, 5 to 7 longitudinal series of dorsal plates instead of 7 or 8, and nearly constantly 2 femoral pores instead of 3.

### 3. *Tachydromus wolteri*, J. G. Fisch.

*Tachydromus wolteri*, J. G. Fischer, Jahrb. Hamb. Wiss. Anst., ii, 1885, p. 82; Günth. Ann. and Mag. N.H. (6) i, 1888, p. 169; Stejneger. Herp. Japan, p. 247 (1907).

*Tachydromus tachydromoides*, part., Boulenger. Cat. Liz., iii, p. 5 (1887).

Body feebly depressed. Head  $1\frac{2}{3}$  to  $1\frac{2}{3}$  times as long as broad, its depth equal to the distance between the anterior corner of the eye and the tympanum, its length

4 times in length to vent; snout pointed, with strong canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus  $1\frac{4}{5}$  to 2 times as long as broad. Neck as broad as the head or a little narrower. The hind limb reaches the elbow; foot as long as the head or slightly longer.

Nostril pierced between three shields. Rostral not entering the nostril; nasals forming a very short suture behind the rostral; frontonasal broader than long, as broad as the internarial space; a small shield often present between the præfrontals;<sup>1</sup> frontal as long as its distance from the end of the snout,  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as broad, of nearly equal width throughout; parietals  $1\frac{1}{3}$  times as long as broad; interparietal  $1\frac{1}{3}$  to 2 times as long as broad; occipital small, much shorter than the interparietal. 4 supraoculars, first very small, second and third equal, fourth small but larger than the first and rarely in contact with the frontoparietal;<sup>2</sup> 4 or 5 superciliaries, first longest, separated from the supraoculars by a complete series of granules. Nasal forming a suture with the anterior loreal, above the small postnasal; anterior loreal shorter than second; 3 to 5 upper labials<sup>3</sup> anterior to the subocular, which is narrowed beneath than above. Temporal scales small, keeled; 3 enlarged upper temporals; tympanic shield present.

4 pairs of chin-shields, the 3 anterior meeting in the middle; 24 to 26 gular scales between the symphysis of the chin-shields and the median collar-plate, anterior granular, smooth, posterior enlarged, imbricate, pointed, and keeled, merging gradually into the collar, which is composed of 10 to 12 pointed, more or less distinctly keeled plates.

Dorsal plates rounded behind, in 8 longitudinal series, those of the two median series smaller; sides with a more or less distinct upper and 3 or 4 lower series of keeled scales and a median granular area. Ventral plates in 8 longitudinal and 27 to 29 transverse series, the outer pointed and keeled, the others rounded or truncate behind and smooth. 36 to 38 plates and scales round the middle of the body. Præanal plate large, smooth, bordered by one semicircle of small plates.

Upper surface of limbs with rhombic keeled scales, much smaller than the dorsals. A single femoral pore on each side. Subdigital lamellæ mostly divided, 19 to 22 under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, equal or in somewhat longer and shorter whorls alternately, the fourth or fifth of which contains 18 to 20 scales.

Olive above, with a more or less distinct light dorso-lateral streak and a dark olive lateral band; a white, black-edged lateral streak from the loreal region through the lower part of the ear-opening to the base of the hind limb; a dark streak along each side of the tail. Lower parts yellowish or greenish white.

Measurements, in millimetres.					1.	2.	3.
From end of snout to vent	..	..	..	..	45	45	46
" " " " " fore limb	..	..	..	..	16	17	16
Head	..	..	..	..	11	11	11

<sup>1</sup> Specimens from Seoul and Kiu Kiang.

<sup>2</sup> On one side in the specimen from Kiu Kiang.

<sup>3</sup> 4 on one side and 5 on the other in the type, 3 on one side and 4 on the other in the specimen from Kiu Kiang.

Measurements, in millimetres.						1.	2.	3.
Width of head	..	..	..	..	..	6.5	7	7
Depth of head	..	..	..	..	..	6	6	6
Fore limb	..	..	..	..	..	15	16	17
Hind limb	..	..	..	..	..	20	20	23
Foot	..	..	..	..	..	11	11	12

1. ♂, Chemulpo, type. 2. ♂, Seoul. 3. ♂, Kiu Kiang.

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.		
♂, Chemulpo, Corea, type.	..	..	45	36	8	8	27	10	26	1	19
„, Seoul, „	..	..	45	36	8	8	29	10	24	1	20
„, Kiu Kiang, China	..	..	46	38	8	8	29	12	24	1	22

Table as on p. 212.

Habitat. Corea and China (Kiu Kiang).

Closely allied to *T. tachydromoides*. Differs in having 8 longitudinal series of dorsal plates, 27 to 29 transverse series of ventral plates, instead of 22 to 24, in males, and a single femoral pore.

4. *Tachydromus septentrionalis*, Gthr.

*Tachydromus septentrionalis*, Günth. Rept. Brit. Ind., p. 70, pl. viii, fig. E.<sup>1</sup> (1864), and Ann. and Mag. N.H. (6) i. 1888, p. 166; Boettg. Ber. Senck. Ges. 1894, pp. 139, 145; Bouleng. Proc. Zool. Soc., 1899, p. 161, fig.; Werner, Abh. Bayer. Ak. 2, xxii, 1903, p. 354; Van Denb. Proc. Calif. Ac. (4) iii, 1912, p. 242.

*Tachydromus tachydromoides*, part., Bouleng. Cat. Liz. iii, p. 5 (1887).

*Tachydromus septentrionalis*, part., Stejneger. Herp. Japan, p. 232 (1907).

Body not or but slightly depressed. Head feebly convex or even quite flat above,  $1\frac{1}{2}$  to  $1\frac{3}{4}$  times as long as broad, its depth equal to the distance between the anterior corner or the centre of the eye and the tympanum, its length  $3\frac{2}{3}$  to  $4\frac{1}{5}$  times in length to vent in males, 4 to  $4\frac{1}{2}$  times in females; snout pointed, with strong canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus 2 to  $2\frac{1}{5}$  times as long as broad. Neck narrower than the head. The hind limb reaches the wrist, the elbow, or the axil in females, the axil or the shoulder in males; foot 1 to  $1\frac{1}{3}$  times as long as the head. Tail  $2\frac{1}{3}$  to  $3\frac{1}{3}$  times as long as head and body.

Nostril pierced between 3, rarely 4, shields. Rostral not entering the nostril, often narrowly in contact with the frontonasal,<sup>2</sup> which is as long as broad or slightly broader than long, as broad as or a little broader than the internarial space; præfrontals forming a median suture; frontal as long as its distance from the end of the snout or a little shorter,  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as broad, usually narrower behind than in front; parietals  $1\frac{1}{3}$  to  $1\frac{2}{3}$  times as long as broad; interparietal  $1\frac{1}{3}$  to 2 times

<sup>1</sup> The male type specimen figured is represented with an intact tail, which is not the case, as may be seen from Günther's description. The tail has been imagined by the artist. Such restorations were often resorted to in those days, and have given rise to much confusion, as in the case of *Chitra indica* in the same work.

<sup>2</sup> In 15 specimens out of 39 examined by me; in 8 out of 12 examined by Van Denburgh.



as long as broad; occipital small, much shorter than the interparietal, rarely nearly as large, often separated from it by one or two small shields or by the parietals meeting in the middle. 4 supraoculars, first very small and rarely broken up into 2 or 3 granules, or in contact with the frontal,<sup>1</sup> or absent,<sup>2</sup> second and third equal or second the longer, fourth small but larger than first and rarely broken up into 2 or 3; 4 or 5 superciliaries, first or first and second largest and usually in contact with the supraoculars; a series of granules, rarely complete, between the supraoculars and the superciliaries. Nasal forming a suture with the anterior loreal above the postnasal,<sup>3</sup> often forming a very short suture with its fellow behind the rostral; anterior loreal shorter than the second, sometimes divided into two<sup>4</sup> and forming a triangle with the postnasal;<sup>5</sup> usually 4 upper labials, sometimes 3 or 5,<sup>6</sup> anterior to the subocular, which is usually narrower beneath than above. Temporal scales small, more or less distinctly keeled; 1, 2, or 3 enlarged upper temporals, the first not in contact with the fourth supraocular; tympanic shield present, narrow and elongate.

3 pairs of chin-shields,<sup>7</sup> the first or first and second meeting in the middle; 20 to 30 gular scales between the symphysis of the chin-shields and the median collar-plate, anterior granular and smooth, posterior enlarged, imbricate, pointed and keeled, and merging gradually into the collar, which is composed of 8 to 12 pointed, keeled plates.

Dorsal plates obtusely pointed or rounded behind, in 4 longitudinal series, with 1 or 2 series of smaller plates on the median line, and rarely<sup>8</sup> with an additional series of smaller plates between the two outer series, making 5 to 8 altogether in the middle of the body; often 6, 7, or 8 in front and 4 or 5 behind; 2 to 4 series of keeled scales near the ventral plates, separated from the dorsals by a granular area. Ventral plates in 8 longitudinal and 24 to 30 (usually 26 to 28) transverse series, obtusely pointed, more or less strongly keeled, and shortly mucronate. 34 to 48 plates and scales round the middle of the body (usually 35 to 40). Præanal plate moderately large or rather small, smooth, rarely feebly bicarinate and longitudinally bisected,<sup>9</sup> often not broader than long, with smaller, usually keeled plates in front and on the sides.

Upper surface of limbs with rhombic keeled scales and granules. A single femoral pore on each side. Subdigital lamellæ partly single and partly divided, mostly divided, 23 to 29 under the fourth toe.

<sup>1</sup> In a male from Kiu Kiang.

<sup>2</sup> In a female from Kiu Kiang and in a young from Da-zel Valley, Chikiang.

<sup>3</sup> Unless its posterior part be severed to form a second postnasal, as in a female from Kiu Kiang.

<sup>4</sup> In 4 specimens from Kiu Kiang, in one from Da-zel Valley, and in one from Kuantun.

<sup>5</sup> As in *Lacerta agilis*. - In a male from Kiu Kiang, the postnasal forms a suture with the second loreal, below the anterior.

<sup>6</sup> 3 on both sides in a female from Kiu Kiang, on one side in a female from Chusan and in a young from Che King near Chusan; 5 on both sides in a male from Kuantun and in a female from Ningpo; on one side in two males from Kiu Kiang and in a female from Shanghai.

<sup>7</sup> 3 on one side and 4 on the other in two specimens from Kiu Kiang and in another from Kuantun. A similar example of asymmetry has been recorded by Werner.

<sup>8</sup> Male and female from Kuantun, female from Shanghai.

<sup>9</sup> Female from Kiu Kiang.

Caudal scales strongly keeled and shortly mucronate, the keels forming 4 very strong ridges on the upper surface of the basal part of the tail, the whorls nearly equal in length, the fourth or fifth containing 14 to 18 scales.

Olive, brown, or coppery red on the back, olive, green, or blue on the sides, usually with a light greenish, often black-edged dorsolateral streak, starting from the superciliary edge; a more or less distinct dark canthal streak and a dark band on the temple and side of neck, or continued along the body, sometimes with blue spots, edged below, but no further than the shoulder, by a light streak starting from the lower eyelid. Lower parts yellow, often greenish on the sides.

Measurements, in millimetres.						1.	2.	3.	4.
From end of snout to vent	..	..	..	..	..	75	69	67	65
"    "    "    "    "    fore limb	.	..	..	..	..	26	27	24	25
Head .. .. .	..	..	..	..	..	18	17	16	16
Width of head	..	..	..	..	..	11	11	10	10
Depth of head	..	..	..	..	..	10	10	8	8
Fore limb	..	..	..	..	..	27	27	23	24
Hind limb	..	..	..	..	..	37	36	32	32
Foot .. .. .	..	..	..	..	..	19	19	17	17
Tail .. .. .	..	..	..	..	..	—	245	205	155

1. ♂, Ningpo, type. 2. ♂, Kuatun. 3. ♀ Kuatun. 4. ♀, Kiu Kiang.

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.
♂, Ningpo, type .. .. .	75	36	6	8	28	10	25	1	25
♀ " " .. .. .	47	38	6	8	28	12	25	1	25
♂ " " .. .. .	60	38	7	8	27	10	29	1	27
♀ " " .. .. .	72	36	6	8	30	11	25	1	27
♂, Snowy Valley, Ningpo. .. .. .	71	35	7	8	27	11	24	1	27
♀, Shanghai .. .. .	65	40	7	8	26	10	23	1	24
" " .. .. .	56	48	8	8	28	11	28	1	26
" Chusan .. .. .	68	36	6	8	27	10	23	1	26
" Kiu Kiang .. .. .	65	37	5	8	29	11	22	1	26
♂, Kiu Kiang Mts. .. .. .	66	35	5	8	27	10	25	1	24
" " " " " .. .. .	65	37	6	8	27	9	20	1	25
" " " " " .. .. .	65	40	6	8	26	11	25	1	25
" " " " " .. .. .	65	35	5	8	27	12	28	1	25
" " " " " .. .. .	62	38	5	8	26	11	27	1	25
" " " " " .. .. .	60	39	5	8	24	10	22	1	24
" " " " " .. .. .	56	39	6	8	26	11	28	1	26
" " " " " .. .. .	51	40	6	8	26	10	25	1	26
♀ " " " " " .. .. .	70	37	6	8	29	10	30	1	26
" " " " " .. .. .	70	36	5	8	28	11	24	1	24
" " " " " .. .. .	69	34	6	8	28	9	23	1	23
" " " " " .. .. .	65	34	6	8	28	8	22	1	27
" " " " " .. .. .	65	41	6	8	28	12	26	1	25
" " " " " .. .. .	58	35	5	8	27	11	20	1	23
" " " " " .. .. .	57	38	5	8	27	11	26	1	23

				1.	2.	3.	4.	5.	6.	7.	8.	9.
♂, Kuatun	..	..	..	69	35	5	8	26	11	22	1	26
" "	..	..	..	69	38	6	8	28	12	24	1	25
" "	..	..	..	68	39	6	8	27	10	25	1	29
♀ "	..	..	..	70	38	6	8	28	11	26	1	28
" "	..	..	..	67	38	8	8	28	11	23	1	25
" "	..	..	..	67	44	8	8	28	10	25	1	26

Table as on p. 212.

Habitat. China along the Yang-tse-Kiang, north-west to the Province of Kansu, south-east to Fokien.

With an insufficient material, in 1887, I unfortunately united this species with *T. tachydromoides*, from which it is perfectly distinct, differing chiefly in the number of chin-shields and of femoral pores, as well as in the constantly keeled ventral plates. The first two characters are not known to suffer any exceptions in the two species here compared, although large series have been examined by me and by others; and this is very remarkable considering that the number of chin-shields certainly varies in *T. smaragdinus* and *T. sexlineatus*, as observed by Van Denburgh, by Stoliczka, and by Annandale, whilst specimens with either one or two femoral pores occur in *T. formosanus* and *T. sexlineatus*.

### 5. *Tachydromus formosanus*, Blgr.

*Tachydromus formosanus*, Bouleng. Ann. and Mag. N.H. (6) xiv, 1894, p. 462; Stejneger. Herp.

Japan, p. 235 (1907); Van Denb. Proc. Calif. Ac. (4) iii, 1912, p. 245.

*Tachydromus septentrionalis*, part., Stejneger. op. cit., p. 232.

*Tachydromus stejnegeri*, Van Denb. t.c., p. 243.

Body not or but slightly depressed. Head feebly convex,  $1\frac{3}{5}$  to  $1\frac{3}{4}$  times as long as broad, its depth equal to the distance between the anterior corner or the centre of the eye and the tympanum, its length  $3\frac{2}{3}$  to 4 times in length to vent in males, 4 to  $4\frac{1}{4}$  times in females; snout pointed, with strong canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus 2 to  $2\frac{1}{5}$  times as long as broad. Neck narrower than the head. The hind limb reaches the elbow in females, the axil or the shoulder in males; foot 1 to  $1\frac{1}{5}$  times as long as the head. Tail 2 to  $3\frac{2}{3}$  times as long as head and body.

Nostril pierced between 3 shields. Rostral not entering the nostril, rarely in contact with the frontonasal,<sup>1</sup> which is as long as broad or a little broader, or longer than broad and in contact with the frontal;<sup>2</sup> præfrontals usually forming a median suture, or separated by an azygos shield;<sup>3</sup> frontal as long as its distance from the end of the snout,  $1\frac{1}{2}$  to  $1\frac{3}{4}$  times as long as broad, a little narrower behind than in front; parietals  $1\frac{1}{4}$  to  $1\frac{1}{2}$  times as long as broad; interparietal  $1\frac{1}{3}$  to 2 times as long as broad; occipital small, much shorter than the interparietal, often separated from it by the parietals meeting in the middle. 4 supraoculars, first very small,

<sup>1</sup> In 27 specimens out of 283 examined by Van Denburgh (about 10 p.c.).

<sup>2</sup> In a male from Taipei and in another from Punkiho.

<sup>3</sup> In a female from Punkiho.



rarely absent,<sup>1</sup> second and third equal or second the longer, fourth small but larger than first; 4 or 5 superciliaries, first or first and second longest, first in contact with the supraoculars,<sup>2</sup> followed by a series of granules, or series of granules complete. Nasal forming a suture with the anterior loreal, above the postnasal, usually forming a short suture with its fellow behind the rostral; anterior loreal shorter than the second; usually 4 upper labials, rarely 3,<sup>3</sup> anterior to the subocular, which is narrower beneath than above. Temporal scales small, obtusely keeled; a large anterior upper temporal, not in contact with the fourth supraocular, usually followed by one or two smaller shields; tympanic shield present, narrow and elongate.

3 pairs of chin-shields,<sup>4</sup> the first or first and second meeting in the middle; 20 to 29 gular scales between the symphysis of the chin-shields and the median collar-plate, anterior granular and smooth, posterior enlarged, imbricate, pointed and keeled, merging gradually into the collar, which is composed of 10 to 12 pointed, keeled plates; no gular fold.

Dorsal plates obtusely pointed or rounded behind, in 6 longitudinal series, usually with 1 or 2 series of smaller plates on the median line, making 6 to 8 altogether in the middle of the body; usually 8 or 10 in front and 6 or 7 behind; 2 or 3 series of keeled scales near the ventral plates, separated from the dorsals by a granular area. Ventral plates in 8, or more frequently in 10,<sup>5</sup> longitudinal and 27 to 33 transverse series, obtusely pointed, strongly keeled, and shortly mucronate. 33 to 38 plates and scales round the middle of the body. Præanal plate moderately broad, sometimes not broader than long, smooth or feebly bicarinate, rarely longitudinally bisected,<sup>6</sup> with smaller keeled plates in front and on the sides.

Upper surface of limbs with rhombic keeled scales and granules. One or two femoral pores on each side.<sup>7</sup> 24 to 29 lamellar scales under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, the keels forming 4 very strong ridges on the upper surface of the basal part of the tail, the whorls nearly equal in length, the fourth or fifth containing 14 to 18 scales.

Brownish olive above, sometimes with darker spots which may form lines along the keels of the dorsal plates; often a yellowish or greenish white dorso-lateral streak, starting from the superciliary edge; a dark streak from the nostril to the eye, and a dark band on the temple and on the side of the neck, often continued on the body, where it may be spotted with greenish white, a light streak from the lower eyelid,

<sup>1</sup> 4 specimens present this exception, according to Van Denburgh.

<sup>2</sup> The rule in *T. stejnegeri* of Van Denburg; in 9 specimens examined by him the series of granules between the supraoculars and the superciliaries is complete, as is the rule in the typical *T. formosanus*.

<sup>3</sup> 3 on each side in a male from Punkiho and in a female from Kanshirei.

<sup>4</sup> 4 shields on one side in two specimens examined by Van Denburgh.

<sup>5</sup> Van Denburgh says the ventrals are in 8 rows, not reckoning as such the adjacent plates which are often quite as long and must be regarded as ventrals.

<sup>6</sup> In one of the types from C. Formosa.—Two keeled plates in 3 specimens and two smooth plates in one of *T. stejnegeri*, two keeled plates in 4 specimens and two smooth plates in 2 of *T. formosanus* (out of 178), according to Van Denburgh.

<sup>7</sup> Van Denburgh found 2 pores on one side in one specimen referred by him to *T. stejnegeri*; the specimens with a single pore (with 9 exceptions out of 284 specimens) are regarded as typical *T. formosanus*.

through the lower part of the ear-opening, to the shoulder, sometimes continued on the side of the body. A black streak on the hinder side of the thigh. Lower parts yellowish or greenish white.

Measurements, in millimetres.		1.	2.	3.	4.	5.	6.
From end of snout to vent	.. ..	41	45	44	50	45	52
" " " " fore limb	.. ..	16	17	17	21	18	19
Head	.. ..	10	12	10	13	11	12
Width of head	.. ..	6	7	6	8	7	7
Depth of head	.. ..	5	6	5	6	6	6
Fore limb	.. ..	14	15	15	18	16	16
Hind limb	.. ..	20	22	21	26	23	23
Foot	.. ..	11	12	10	15	13	13
Tail	.. ..	87	—	122	165	138	140

1. ♀, Taiwanfoo, type. 2. ♂, C. Formosa, type. 3. ♀, C. Formosa, type. 4. ♂, Taipeh, co-type of *T. stejnegeri*. 5. ♂, Punkiho. 6. ♀, Kanshirei.

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.
♀, Taiwanfoo, type	41	36	8	10	32	10	23	2	24
♂, Central Formosa, type	45	35	7	8	29	12	22	2	25
♀ " " "	46	36	7	10	30	10	24	2	24
" " " "	44	37	8	10	31	11	28	2	24
" " " "	41	38	7	10	30	11	29	2	24
♂, Taipeh, co-type of <i>T. stejnegeri</i> .	50	34	6	8	28	11	26	1	29
" Tainan, " "	47	36	7	10	29	11	26	1	26
" Punkiho " "	45	35	7	10	27	11	20	1	25
♀, " " "	32	34	7	10	22	12	25	1	25
" Kanshirei <sup>1</sup> " "	52	33	8	10	30	10	23	1	24
" Tamsui " "	44	37	8	8	30	12	25	1	24

Table as on p. 212.

Habitat. Formosa and Pascadores Islands.

*T. formosanus* is very closely allied to *T. septentrionalis*, differing in the presence of 6 series of large plates along the back instead of 4, and by the frequent presence of 10 series of ventral plates instead of 8. The size is smaller and the green colour is absent from the sides. I am convinced that Van Denburgh's proposal to separate this species into two, one with normally two femoral pores (*T. formosanus*), the other with one (*T. stejnegeri*) is untenable, the general agreement being too great and the supposed distinctive characters too slight and too inconstant to justify such a course.

### 6. *Tachydromus khasiensis*, sp.n.

*Tachydromus sexlineatus*, part., Bouleng. Cat. Liz. iii, p. 4 (1887), and Faun. Ind., Rept., p. 169 (1890); Günth. Ann. and Mag. N.H. (6) i, 1888, p. 167.

Body scarcely depressed. Head about  $1\frac{3}{4}$  times as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length

<sup>1</sup> This specimen was received from the Museum of the California Academy under the name of *T. stejnegeri*. Yet in his description Van Denburgh refers all the specimens from Kanshirei to *T. formosanus*, thus showing the uncertainty in distinguishing the two supposed species. The author rightly observed that unfortunately no one of the distinctive characters is absolutely constant in all specimens.

4 to  $4\frac{1}{3}$  times in length to vent in males,  $4\frac{1}{2}$  to 5 times in females; snout pointed, with sharp canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus twice as long as broad. Neck narrower than the head. Hind limb reaching the wrist in females, the elbow in males; foot as long as the head. Tail a little over twice the length of head and body.

Nostril pierced between 3 to 5 shields. Rostral usually entering the nostril; upper head-shields rugose; frontonasal broader than long, not or but slightly broader than the internarial space; præfrontals forming an extensive suture; frontal as long as or shorter than its distance from the end of the snout,  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as broad, of subequal width throughout or a little narrower behind than in front; parietals  $1\frac{1}{3}$  to  $1\frac{2}{3}$  times as long as broad; interparietal  $1\frac{1}{3}$  to 2 times as long as broad, much longer than the occipital, which may be broader. 3 supraoculars, first longer than the second and usually in contact with the second loreal; 3 superciliaries, second longest; no granules between the supraoculars and the superciliaries. Nasal forming a suture with its fellow behind the rostral and with the anterior loreal above the postnasal, which may be very small or absent, in which case the loreal borders the nostril; anterior loreal shorter than the second; 3 or 4 upper labials<sup>1</sup> anterior to the subocular, which is not or but little narrower beneath than above. Temporal scales moderately large or rather small, hexagonal, keeled; 1, 2, or 3 large upper temporals, first sometimes in contact with the fourth supraocular; a long and narrow tympanic shield.

3 pairs of chin-shields, first and second in contact in the middle. 17 to 22 gular scales in the median line, anterior narrow, juxtaposed, smooth or faintly keeled, posterior increasing in size, imbricate, keeled, and merging gradually into the collar, the plates of which are very distinct, pointed, keeled, and 10 or 11 in number.

Dorsal plates truncate or shortly mucronate behind, in 6 or 8 longitudinal series on the neck, in 4 on the body. Ventral plates obtusely pointed or shortly mucronate, strongly keeled, in 12 longitudinal and 22 to 25 transverse series. Sides with one upper and one lower series of smaller keeled scales and a median granular area. 26 to 28 plates and scales round the middle of the body. Præanal plate rather large, smooth or feebly bicarinate, bordered by a semicircle of small keeled plates.

Upper surface of limbs with rhombic keeled scales. 2 or 3 femoral pores on each side. Subdigital lamellæ single, 19 or 20 under the fourth toe.

Caudal scales strongly keeled and mucronate, the keels forming 4 very strong ridges on the upper surface of the basal part of the tail; the whorls nearly equal in length, the fourth or fifth containing 14 or 16 scales.

Olive above, with a yellowish or greenish white, usually black-edged dorso-lateral streak starting from the superciliary edge; a dark lateral band from the nostril, through the eye and involving the upper half of the ear-opening, to the tail, edged below by a light streak. Lower parts greenish white (in spirit). Tail reddish in the young.

<sup>1</sup> 3 in two specimens, 4 in two, 3-4 in the two others.



Measurements, in millimetres.						♂	♀
From end of snout to vent	..	..	..	..	..	48	51
„ „ „ „ „ fore limb	..	..	..	..	..	19	17
Head	..	..	..	..	..	11	10.5
Width of head	..	..	..	..	..	6.5	6
Depth of head	..	..	..	..	..	5	5
Fore limb	..	..	..	..	..	16	15
Hind limb	..	..	..	..	..	20	21
Foot	..	..	..	..	..	11	11
Tail	..	..	..	..	..	—	108

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.			
♂	..	..	..	48	27	4	12	24	11	21	3.2	19
„	..	..	..	48	26	4	12	24	10	19	3	?
„	..	..	..	44	26	4	12	22	11	18	2	19
♀	..	..	..	53	28	4	12	23	10	22	2	20
„	..	..	..	51	28	4	12	25	10	21	2	19

Table as on p. 212.

Habitat. Khasi hills, near Assam. Six specimens, from the collection of Dr. T. C. Jerdon, are preserved in the British Museum. Jerdon referred them to *T. sexlineatus* (Proc. As. Soc. Beng. 1870, p. 72).

This species may be regarded as intermediate between *T. tachydromoides* and *T. sexlineatus*, as observed by Günther in 1888: "Specimens of *T. sexlineatus* from Khassya, in the British Museum, have on the whole a somewhat shorter and less tapering snout, also shorter toes than the typical form, and approach in these respects *T. meridionalis*."

### 7. *Tachydromus smaragdinus*, Blgr.

*Tachydromus smaragdinus*, Bouleng. Proc. Zool. Soc. 1887, p. 147, pl. xvii, fig. 2, and pl. xviii, fig. 1, and Cat. Liz. iii, p. 509 (1887); Günth. Ann. and Mag. N.H. (6) i, 1888, p. 168; Stejneger. Herp. Japan, p. 236, fig. (1907); Van Denb. Proc. Calif. Ac. (4) iii, 1912, p. 247.

Body scarcely depressed. Head twice or nearly twice as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length  $3\frac{1}{2}$  to 4 times in length to vent in males, 4 to  $4\frac{1}{4}$  times in females; snout acutely pointed, with sharp canthus and nearly vertical loreal region, a little longer than the postocular part of the head. Pileus  $2\frac{1}{3}$  to  $2\frac{1}{2}$  times as long as broad. Neck narrower than the head. Hind limb reaching the elbow or the axil in females, the axil or the shoulder in males; foot a little longer than the head. Tail  $2\frac{1}{2}$  to  $3\frac{1}{3}$  times as long as head and body.

Nostril pierced between 3 or 4 shields. Rostral sometimes entering the nostril; frontonasal as long as broad or longer than broad; præfrontals forming a usually extensive suture; frontal as long as or a little shorter than its distance from the end of the snout,  $1\frac{1}{2}$  to 2 times as long as broad, narrower behind than in front; parietals  $1\frac{1}{3}$  to  $1\frac{2}{3}$  times as long as broad, often separated from the very small occipital by one

or two small shields or by the parietals meeting in the middle. 3 or 4 supraoculars,<sup>1</sup> first, if present, very small or reduced to a granule, second usually longer than the third, fourth small and sometimes broken up into granules; 4 or 5 superciliaries, first and second elongate, first often in contact with the second supraocular; a complete or incomplete series of granules between the supraoculars and the superciliaries. Nasal usually forming a suture with its fellow behind the rostral<sup>2</sup> and with the anterior loreal above the postnasal, which may be very small or absent;<sup>3</sup> anterior loreal shorter than the second; 4, rarely 5,<sup>4</sup> upper labials anterior to the subocular, which is usually not or but little narrower beneath than above. Temporal scales very small, granular, obtusely keeled, 10 to 15 on a line between the orbit and the tympanum; an enlarged anterior upper temporal, exceptionally<sup>5</sup> in contact with the fourth supraocular; a very narrow tympanic shield usually present.

3 pairs of chin-shields, first or first and second, exceptionally all three,<sup>6</sup> in contact in the middle. 21 to 34 gular scales in the median line, anterior granular and faintly keeled, posterior increasing in size, imbricate, keeled, and merging gradually into the plates of the very distinct collar, which are pointed, keeled, and 10 to 13 in number.

Dorsal plates truncate, obtusely pointed or rounded behind, in 8 or 10, rarely 7, longitudinal series on the body, equal or the median pair smaller and more irregular, often in 10 series anteriorly and 7 posteriorly. A lateral series of large keeled scales, corresponding to the light lateral streak, separated from the ventral plates by 2 or 3 series of smaller scales and from the dorsals by a broad granular area. Ventral plates pointed and mucronate, strongly keeled, in 6 or 8 longitudinal and 26 to 31 transverse series. 37 to 45 plates and scales round the middle of the body. Præanal plate rather large, entire and often bicarinate in males, usually longitudinally divided in females, with smaller keeled plates on the sides.

Upper surface of limbs with rhombic keeled scales. A single femoral pore on each side. Subdigital lamellæ mostly divided, 23 to 27 (exceptionally 31) under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, in subequal whorls, the fourth containing 14 to 18 scales.

Bright green above; a pale yellow streak along each side, from the upper lip to the groin or to above the axil, passing below the tympanum;<sup>7</sup> males usually with a broad grey or bronzy lateral band above the yellow streak. Lower parts greenish yellow.

<sup>1</sup> Of the 11 type specimens before me, 5 have 4 supraoculars, 5 have 3, and one has 4 on one side and 3 on the other. In the original description I noted 4 supraoculars in 19 cases out of 26.

<sup>2</sup> Van Denburgh finds the rostral in contact with the frontonasal in about 69 p. cent. of the specimens from Amami, in about 10 p. cent. of those from Kikaiga, and in about 5 p. cent. of those from Okinawa.

<sup>3</sup> Absent in one specimen.

<sup>4</sup> On one side only in 3 specimens.

<sup>5</sup> In one specimen.

<sup>6</sup> In one specimen.—Van Denburgh finds, 4 pairs in 12 cases, and 3 on one side and 4 on the other in 16, out of 151 specimens.

<sup>7</sup> The specimens from Miyako examined by Van Denburgh show no trace of the light lateral streak, even on the head. In some of the specimens from the Northern islands there is a light dorso-lateral streak.

Measurements, in millimetres.						♂	♀
From end of snout to vent	..	..	..	..	..	50	55
"    "    "    "    "    fore limb	..	..	..	..	..	18	20
Head	..	..	..	..	..	12	13
Width of head	..	..	..	..	..	6.5	7
Depth of head	..	..	..	..	..	5	6
Fore limb	..	..	..	..	..	20	20
Hind limb	..	..	..	..	..	27	27
Foot	..	..	..	..	..	15	14
Tail	..	..	..	..	..	137	152

*Particulars of specimens examined (the types).*

					1.	2.	3.	4.	5.	6.	7.	8.	9.
♂	..	..	..	..	56	42	8	8	29	10	21	1	24
"	..	..	..	..	50	39	8	6	26	13	22	1	27
"	..	..	..	..	49	37	8	6	32	10	27	1	26
"	..	..	..	..	47	38	9	6	29	11	27	1	24
"	..	..	..	..	46	38	10	8	28	12	25	1	25
"	..	..	..	..	45	39	9	6	29	10	25	1	23
♀	..	..	..	..	55	40	10	6	29	12	27	1	24
"	..	..	..	..	54	45	9	6	28	12	34	1	26
"	..	..	..	..	54	40	9	6	29	12	29	1	31
"	..	..	..	..	49	39	8	6	31	12	27	1	26
"	..	..	..	..	44	37	7	6	30	13	29	1	27

Table as on p. 212.

Habitat. Loo Choo or Riu Kiu Islands: Okinawa, Miyakoshima, Amami, Oshima, and Kikaiga.

According to Van Denburgh, the specimens from Miyakoshima have the ventrals in 8 longitudinal series and lack the light lateral streak, whilst those from the other islands have the ventrals in 6 series, rarely 8, and the light lateral streak is present.

This is a very sharply defined species, equally remote from *T. septentrionalis* and from *T. sexlineatus*, although occupying a somewhat intermediate position between the two as regards form and lepidosis.

### 8. *Tachydromus sauteri*, Van Denb.

*Tachydromus sauteri*, Van Denb. Proc. Calif. Ac. (4) iii. 1909, p. 50, and t.c. 1912, p. 251.

Body scarcely depressed. Head twice or nearly twice as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length 4 times in length to vent in males,  $4\frac{1}{4}$  times in females; snout acutely pointed, with sharp canthus and nearly vertical loreal region, a little longer than the postocular part of the head. Pileus  $2\frac{1}{4}$  to  $2\frac{1}{3}$  times as long as broad. Neck narrower than the head. Hind limb reaching the elbow in females, the axil in males; foot a little longer than the head. Tail  $3\frac{1}{2}$  to 4 times as long as head and body.

Nostril pierced between 4 or 5 shields. Rostral entering the nostril; frontonasal



longer than broad; præfrontals forming an extensive suture; frontal a little shorter than its distance from the end of the snout,  $1\frac{2}{3}$  times as long as broad, narrower behind than in front; parietals  $1\frac{2}{3}$  times as long as broad; interparietal  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as long as broad, separated from the very small occipital by the parietals meeting in the middle. 4 supraoculars, first very small, second longer than the third, fourth small but larger than the first; 3 superciliaries, first and second elongate; a complete series of granules between the supraoculars and the superciliaries. Nasal usually forming a suture with its fellow behind the rostral<sup>1</sup> and in contact with the anterior loreal above the postnasal, unless its posterior portion be detached to form a second postnasal;<sup>2</sup> anterior loreal as long as or shorter than the second; 4 upper labials<sup>3</sup> anterior to the subocular, which is not or but little narrower beneath than above. Temporal scales very small, granular, obtusely keeled, 12 on a line between the orbit and the tympanum; a feebly enlarged anterior upper temporal; a very narrow tympanic shield.

4 pairs of chin-shields,<sup>4</sup> the 3 anterior in contact in the middle. 22 to 24 gular scales in the median line, anterior granular and faintly keeled, posterior increasing in size, imbricate, keeled, and merging gradually into the plates of the very distinct collar, which are pointed, keeled, and 10 to 12 in number.

Dorsal plates obtusely pointed or rounded behind, in 7 or 8 longitudinal series on the body, the median smaller.<sup>5</sup> Ventral plates obtusely pointed and mucronate, very strongly keeled, in 6 longitudinal and 27 or 28 transverse series. 2 or 3 series of keeled scales on the side above the ventral plates, separated from the dorsals by a broad granular area. 28 to 32 plates and scales round the middle of the body. Præanal plate rather larger,<sup>6</sup> bicarinate, with one or two smaller keeled plates on each side.

Upper surface of limbs with rhombic keeled scales. A single femoral pore on each side. Subdigital lamellæ single, or partly single and partly paired, 24 under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, in subequal whorls, the fourth containing 12 or 14 scales.

Bright green above; a white streak along each side, from the upper lip to the groin, passing below the tympanum and along the upper half of the outer row of ventral plates, continued on the base of the tail. Limbs and tail often reddish. One of the specimens described by Van Denburgh has a dark red-brown band along the side, from the eye, just above the white streak, to the tail, where it spreads over the upper surface. Lower parts white.

<sup>1</sup> Rostral in contact with the frontonasal in 2 specimens out of 51 examined by Van Denburgh.

<sup>2</sup> As in one of the two specimens here described.

<sup>3</sup> 5 in the type specimen described by Van Denburgh.

<sup>4</sup> 5 in one specimen, 3—4 in another, according to Van Denburgh.

<sup>5</sup> According to Van Denburgh, there are usually two median series of small plates anteriorly and one posteriorly, or 3—2—1, 2—1—0, 1 throughout, or 1—0. One specimen has only 1 row of large plates on each side of the back, separated by about 7 rows of smaller, irregular plates.

<sup>6</sup> Exceptionally divided, according to Van Denburgh.

Measurements, in millimetres.						♂	♀
From end of snout to vent	..	..	..	..	..	52	55
"    "    "    "    "    fore limb	..	..	..	..	..	19	19
Head	..	..	..	..	..	13	13
Width of head	..	..	..	..	..	7	6.5
Depth of head	..	..	..	..	..	6	5.5
Fore limb	..	..	..	..	..	22	20
Hind limb	..	..	..	..	..	26	26
Foot	..	..	..	..	..	15	14
Tail	..	..	..	..	..	200	195

*Particulars of specimens examined.*

				1.	2.	3.	4.	5.	6.	7.	8.	9.
♂, Cochun	..	..	..	52	28	7	6	27	12	22	1	24
♀, "	..	..	..	55	32	8	6	28	10	24	1	24

Table as on p. 212.

Habitat. Formosa.

Closely allied to *T. smaragdinus*, but readily distinguished by the number of chin-shields, the lower number of plates and scales round the middle of the body, the longer tail, and the position of the light lateral streak.

### 9. *Tachydromus sexlineatus*, Daud.

- Tachydromus sexlineatus*, Daud. Hist. Rept. iii, p. 256, pl. xxxix (1802); Brongn. Mém. Sav. Etr. Ac. Paris, i. 1806, p. 627, pl. ii, fig. 8; Dum. et Bibr. Exp. Gén. v, p. 158 (1839); Gray, Cat. Liz., p. 52 (1845); Günth. Rept. Brit. Ind., p. 69, pl. viii, fig. C. (1864); Stoliczka, Journ. As. Soc. Beng. xii, 1872, p. 87; Günth. Nov. Zool. ii. 1895, p. 499; Laidlaw, Proc. Zool. Soc. 1901, p. 310; Annandale, Journ. As. Soc. Beng. (2) i. 1905, p. 140; Bouleng. Vert. Faun. Mal. Pen., Rept., p. 79 (1912); De Rooij, Rept. Ind.-Mal. Arch. i, p. 154, fig. (1915).
- Tachydromus quadrilineatus*, Daud. t. c., p. 252.
- Tachydromus ocellatus* (Cuv.), Guér. Icon. R. An., Rept. pl. vi, fig. 3 (1829); Duvern. R. An., Rept. pl. xi (1836).
- Tachydromus typus*, Gray, Ann. N.H. i. 1838, p. 389.
- Tachydromus sexlineatus*, var. *æneofuscus*, Peters. Mon. Berl. Ac. 1863, p. 405.
- Tachydromus meridionalis*, Günth. Rept. Brit. Ind. p. 70, pl. viii, fig. D, and Ann. and Mag. N.H. (6) i. 1888, p. 167.
- Tachydromus sexlineatus*, part., Bouleng. Cat. Liz. iii, p. 4 (1887), and Faun. Ind., Rept. p. 169 (1890); Günth. Ann. and Mag. N.H. (6) i. 1888, p. 167.
- Tachydromus sikkimensis*, Günth l.c.

Body not depressed. Head about twice as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length  $3\frac{2}{3}$  to  $4\frac{1}{6}$  times in length to vent in males, 4 to  $4\frac{1}{3}$  times in females; snout acutely pointed, with sharp canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus  $2\frac{1}{3}$  to  $2\frac{1}{3}$  times as long as broad. Neck narrower than the head. Hind limb reaching the elbow or the axil; foot as long as or a little longer than the head. Tail 3 to 5 times as long as head and body.

Nostril pierced between 3 or 4 shields. Rostral sometimes entering the nostril; upper head-shields smooth or feebly rugose; frontonasal as long as broad or longer

than broad; præfrontals forming a median suture;<sup>1</sup> frontal as long as or shorter than its distance from the end of the snout,  $1\frac{1}{2}$  to 2 times as long as broad, narrower behind than in front; parietals  $1\frac{2}{3}$  to 2 times as long as broad; interparietal  $1\frac{1}{2}$  to 2 times as long as broad; occipital usually shorter than the interparietal, sometimes nearly as long and a little broader, sometimes separated from it by one<sup>2</sup> or two<sup>3</sup> small shields, or by the parietals meeting in the middle.<sup>4</sup> 3 supraoculars, first longer than the second and in contact with the second, loreal, third small and rarely<sup>5</sup> in contact with the frontoparietal; 3, very rarely 4, superciliaries, second longest; granules between the supraoculars and the superciliaries absent or reduced to one or two. Nasal usually forming a very short suture with its fellow behind the rostral<sup>6</sup> and with the anterior loreal above the postnasal;<sup>7</sup> anterior loreal shorter than the second; 4 upper labials, rarely 3<sup>8</sup> or 5,<sup>9</sup> anterior to the subocular, which is narrower beneath than above. Temporal scales moderately large, rhombic or hexagonal, strongly keeled; one, two, or three large, keeled upper temporals, first very rarely<sup>10</sup> in contact with the fourth supraocular; a long and narrow tympanic shield.

3 pairs of chin-shields,<sup>11</sup> first or first and second in contact in the middle; 15 to 24 gular scales on the median line, anterior narrow, juxtaposed, feebly keeled, then increasing in size, imbricate, pointed, keeled, and merging gradually into the rather indistinct collar, which is composed of 8 to 12 plates.

Dorsal plates truncate and shortly mucronate behind, in 6 or 8 longitudinal series on the neck, 4 or 6 on the anterior part of the body; 4, very rarely 6, in the middle of the body, 4 on the lumbar region.<sup>12</sup> Ventral plates obtusely pointed and shortly mucronate, strongly keeled, in 10 or 12 longitudinal and 21 to 28 transverse series. A rather irregular series of large keeled scales borders the ventral plates and is separated from the dorsals by a granular area. 28 to 38 plates and scales round the middle of the body. Præanal plate rather large, more or less distinctly bicarinate, with smaller keeled plates on the sides.

Upper surface of limbs with rhombic keeled scales. 1 or 2, very rarely 3, femoral pores on each side.<sup>13</sup> Subdigital lamellæ single or partly divided, 18 to 26 under the fourth toe, usually 21 to 26.

<sup>1</sup> Separated by one or two small shields in one specimen from Saigon and in another from Borneo.

<sup>2</sup> In one specimen from Borneo.

<sup>3</sup> In one specimen from Saigon.

<sup>4</sup> Single specimens from S. China, Saigon, Rangoon and Java.

<sup>5</sup> One specimen from S. China, one from Saigon, and two from Great Natuna.

<sup>6</sup> In single specimens from Ma Son Mts., Great Natuna, and Borneo, the rostral is narrowly in contact with the frontonasal.

<sup>7</sup> In one specimen from Saigon the posterior portion of the nasal is detached to form a second postnasal; the postnasal is absent on one side in a specimen from Matang.

<sup>8</sup> On both side in one specimen from Great Natuna and in one from Java; on one side in one from Matang and in one from Java.

<sup>9</sup> On one side in two specimens from Saigon and in one from Great Natuna.

<sup>10</sup> In one specimen from Matang.

<sup>11</sup> There are exceptions. Out of 25 specimens from Sikkim Stoliczka found 4 with 4 pairs and one with 3 shields on one side and 4 on the other. Annandale found 2 with 4 pairs out of 27 from the Eastern Himalayas, Assam and Burma.

<sup>12</sup> There is sometimes irregularity on the two sides of the same specimen; thus in a female from Siam there are 2 plates on one side and 3 on the other in the two transverse series of dorsal plates just before the middle of the body.

<sup>13</sup> Stoliczka's statement that they vary from 3 to 6 in Sikkim specimens requires confirmation. The specimens on which his description is based are not in the Calcutta Museum, Dr. Annandale informs me.



Caudal scales strongly keeled and mucronate, the keels forming 4 very strong ridges on the upper surface of the basal part of the tail, the whorls nearly equal in length, the fourth or fifth containing 12 to 18 scales.

Greenish olive, bronze brown, or reddish above, with metallic gloss; usually a white or whitish dorso-lateral streak,<sup>1</sup> often edged with a black line or a broad black band, originating on the superciliary edge or just behind the parietal shield; the black band bordering the white streak produced on the side of the head; a white, sometimes black-edged streak from the loreal region to the shoulder, passing through the middle of the tympanum, sometimes continued on the side of the body; males often with a series of small white, black-edged ocelli above the lower lateral streak; hinder side of thigh often with a black streak; limbs and tail often reddish. Lower parts yellowish or greenish white.

Measurements, in millimetres.				1.	2.	3.	4.	5.
From end of snout to vent	..	..	..	45	49	57	57	61
" " " " " fore limb	..	..	..	17	18	22	21	21
Head	..	..	..	11	12	14	14	14
Width of head	..	..	..	6	6	7	7	7
Depth of head	..	..	..	5.5	5.5	7	6	6
Fore limb	..	..	..	17	16	20	20	20
Hind limb	..	..	..	23	22	29	28	28
Foot	..	..	..	12	12	15	14	14
Tail	..	..	..	145	200	280	215	255

1. ♂, S. China, type of *T. meridionalis*. 2. ♀, ditto. 3. ♂, Great Natuna. 4. ♂, Java. 5. ♀, Matang.

*Particulars of specimens examined.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.		
♂, Amoy, China	..	..	52	28	4	12	23	10	18	1	21
.., S. China (type of <i>T. meridionalis</i> )	..	..	45	33	4	12	22	9	20	1	21
♀, " " " " " " " "	..	..	53	32	4	12	24	10	19	1	18
" " " " " " " "	..	..	49	31	4	12	24	11	22	1	21
" " " " " " " "	..	..	41	30	4	12	25	10	17	1	19
♂, Man Son Mts., Tonkin	..	..	55	32	4	12	25	9	20	1	22
.., Saigon (Lataste Coll.)	..	..	60	37	4	10	26	11	23	1	22
" " " " " " " "	..	..	53	32	4	10	25	10	18	1	22
" " " " " " " "	..	..	53	34	4	10	22	11	20	1	24
" " " " " " " "	..	..	52	38	4	10	23	10	24	1	24
♀, " " " " " " " "	..	..	61	33	4	10	26	10	21	1	24
" " " " " " " "	..	..	58	34	4	10	27	10	23	1	25
" " " " " " " "	..	..	58	34	4	10	27	8	20	1	22
♂, Sittong, Sikkim (Indian Museum).	..	..	56	30	4	10	23	10	20	3	25
♀, Rangoon	..	..	60	34	4	10	24	11	23	2	26
" " " " " " " "	..	..	50	34	4	10	24	10	18	2	25
" " " " " " " "	..	..	46	34	4	10	25	9	22	2	23
♂, Bangkok, Siam	..	..	57	28	4	12	24	11	20	1	21
♀, " " " " " " " "	..	..	51	33	4	10	23	10	23	1	22

<sup>1</sup> Absent in the specimens from Rangoon.

			1.	2.	3.	4.	5.	6.	7.	8.	9.
♀, Maprit, Siam	..	..	56	30	4	10	25	10	20	1	23
♂, Jalor	..	..	52	34	6	12	23	12	22	1	21
♂, Great Natuna Id.	..	..	57	30	4	10	25	11	17	2	22
.. ..	..	..	57	32	4	10	25	10	19	2	25
.. ..	..	..	55	32	4	12	24	11	20	1	19
.. ..	..	..	55	29	4	10	24	20	18	1	20
.. ..	..	..	54	32	4	12	23	11	17	1	23
♀ ..	..	..	60	31	4	10	23	10	19	2	26
♂, Matang, Borneo	..	..	58	34	4	10	21	11	15	2	22
♀ .. ..	..	..	61	29	4	10	22	11	18	2	22
♂, Borneo ..	..	..	57	32	4	10	23	10	20	2	24
.. ..	..	..	55	30	4	10	23	9	19	2-1	25
♀ .. ..	..	..	62	33	4	10	23	9	18	2	23
♂, Java ..	..	..	58	32	4	10	25	9	19	1	24
.. ..	..	..	57	34	4	10	26	9	23	2	26
.. ..	..	..	56	38	4	10	25	10	22	2	24
.. ..	..	..	54	32	4	10	24	11	22	2	26
.. ..	..	..	53	35	4	10	25	10	22	2	25
♀ .. ..	..	..	49	34	4	10	28	9	23	2	26

Table as on p. 212.

Habitat. From Southern China and the Eastern Himalayas through Indo-China, Assam, Burma, Siam, and the Malay Peninsula to the Malay Archipelago (Natuna Islands, Sumatra, Banka, Borneo, Java). Reaches an altitude of 1,200 m. in Java.

### 10. *Tachydromus haughtonianus*, Jerd.

*Tachydromus haughtonianus*, Jerdon, Proc. As. Soc. Beng. 1870, p. 72; Anders. Proc. Zool. Soc. 1871, p. 156; Stoliczka, Journ. As. Soc. Beng. xli, 1872, p. 88; Günth. Ann. and Mag. N.H. (6) i, 1888, p. 169.

*Tachydromus septentrionalis*, (non Günth.), Annandale, Proc. As. Soc. Beng. (2) i, 1905, p. 139.

Body not depressed. Head  $2\frac{1}{3}$  times as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length  $4\frac{1}{4}$  times in length to vent; snout acutely pointed, with sharp canthus and nearly vertical loreal region, as long as the postocular part of the head. Pileus  $2\frac{1}{2}$  times as long as broad. Neck a little narrower than the head. Hind limb reaching the axil; foot as long as the head. Tail  $2\frac{2}{3}$  times as long as head and body.

Nostril pierced between 4 shields. Rostral entering the nostril; upper head-shields smooth; frontonasal longer than broad; præfrontals forming a median suture; frontal shorter than its distance from the end of the snout,  $1\frac{2}{3}$  times as long as broad, narrower behind than in front; parietals nearly twice as long as broad; interparietal  $1\frac{1}{2}$  times as long as broad; occipital as broad as and shorter than the interparietal. 3 supraoculars, first longer than the second and in contact with the second loreal, third very small and narrowly separated from the frontoparietal; 5 superciliaries, second longest, all in contact with the supraoculars. Nasal forming a very short suture with its fellow behind the rostral and with the anterior loreal above the post-nasal; anterior loreal shorter than the second; 4 or 5 upper labials anterior to the

subocular, which is as broad beneath as above. Temporal scales very small, hexagonal, keeled; two large upper temporals, keeled above, first not in contact with the fourth supraocular; a long and narrow tympanic shield.

4 pairs of chin-shields, the 3 anterior in contact in the middle; 26 gular scales in the median line, anterior narrow, juxtaposed, smooth, posterior increasing in size, imbricate, pointed, strongly keeled, and passing gradually into the ventral plates, there being no trace of a collar.

Dorsal plates truncate and shortly mucronate behind, in 6 longitudinal series on the neck and body. Ventral plates truncate and shortly mucronate, strongly keeled, in 10 longitudinal and 30 transverse series; no large scales bordering the ventral plates. 32 plates and scales round the middle of the body. Præanal plate large, bicarinate, with smaller keeled plates on the sides.

Upper surface of limbs with rhombic keeled scales. A single femoral pore on each side.<sup>1</sup> Subdigital lamellæ single, 22 under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, the keels forming 6 ridges on the upper surface of the basal part of the tail; the whorls nearly equal in length, the fourth containing 18 scales.

Reddish brown above, with a broad whitish streak on each side, proceeding from the superciliary edge; below this a dark brown lateral streak, proceeding from the nostril and passing through the eye and the tympanum; limbs reddish. Lower parts yellowish white.

Measurements, in millimetres.

From end of snout to vent	..	..	..	..	..	..	60
"    "    "    "    " fore limb	..	..	..	..	..	..	23
Head	..	..	..	..	..	..	14
Width of head	..	..	..	..	..	..	6
Depth of head	..	..	..	..	..	..	5
Fore limb	..	..	..	..	..	..	25
Hind limb	..	..	..	..	..	..	30
Foot	..	..	..	..	..	..	16
Tail	..	..	..	..	..	..	145

This species is known from a single male specimen, from Goalpara in Assam, preserved in the Indian Museum, Calcutta, which has been kindly entrusted to me for description by Dr. Annandale.

It is closely allied to *T. sexlineatus*, but differs in the still narrower head, the shorter tail, the number of series of dorsal plates, the smaller temporal scales, and the total absence of a collar.

### **Platyplacopus, g. n.**

Head-shields normal. Nostril pierced between the nasal, one or two postnasals, and the first upper labial. Lower eyelid scaly. Collar distinct. Back with large, plate-like, imbricate scales with strong keels forming continuous lines; sides with

<sup>1</sup> Günther's statement that there are 2 pores is due to a misunderstanding of Anderson's description, which mentions "one pair of femoral pores."



granular scales; ventral plates obtusely pointed, imbricate, smooth or feebly keeled. Digits slightly depressed, with large transversely elliptic smooth lamellæ inferiorly, the distal joint compressed, bent at an angle and covered with narrow lamellæ inferiorly. Femoral pores reduced to 3 to 5 on each side. Tail very long, cylindrical.

Southern China and Formosa.

Distinguished from *Tachydromus* by the structure of the digits, which reproduces the condition known in the Geckonid genus *Gymnodactylus*. In this respect it is more specialized than *Tachydromus*, whist nearer to *Lacerta* in having occasionally as many as 5 femoral pores.

### 1. *Platyplacopus kuehnei*, Van Denb.

*Tachydromus kuehnei*, Van Denb. Proc. Calif. Ac. (4) iii, 1909, p. 50, and t. c. 1912, p. 252; T. Vogt. Sitzb. Ges. Nat. Fr. Berl., 1914, p. 99.

Body feebly depressed. Head flat above, nearly twice as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length  $3\frac{1}{2}$  times (male) in length to vent; snout acutely pointed, as long as the post-ocular part of the head, with sharp canthus and vertical loreal region. Pileus slightly more than twice as long as broad. Neck narrower than the head. Hind limb reaching the axil (male); foot as long as the head. Tail more than twice as long as head and body.

Nostril pierced between 3 or 4 shields. Rostral not touching the nostril, rarely in contact with the frontonasal;<sup>1</sup> upper head-shields rather rough with faint striæ and pits; frontonasal a little longer than broad; præfrontals forming an extensive median suture; frontal with a median keel, a little shorter than its distance from the end of the snout, as long as the frontoparietals,  $1\frac{2}{3}$  times as long as broad, a little narrower behind than in front; parietals  $1\frac{2}{3}$  times as long as broad; interparietal  $1\frac{1}{2}$  times as long as broad, separated from the smaller occipital by a short suture formed by the parietals. 4 supraoculars, first very small, second and third equal, fourth small; 4 superciliaries, first and second elongate, first in contact with the second supraocular and followed by a series of granules.<sup>2</sup> Two superposed postnasals<sup>3</sup>; anterior loreal much shorter than the second; 4 upper labials<sup>3</sup> anterior to the subocular, which is a little narrower beneath than above. Temporal scales very small, granular, keeled; an enlarged anterior upper temporal, not in contact with the fourth supraocular; a very narrow tympanic shield.

4 pairs of chin-shields, the 3 anterior in contact in the middle; 28 gular scales on the median line, anterior granular, posterior increasing in size, imbricate, feebly keeled, and merging gradually into the plates of the collar, which are pointed, feebly keeled, and 11 in number.

Dorsal plates truncate behind, in 6<sup>+</sup> regular longitudinal series, with a vertebral

<sup>1</sup> According to Vogt.

<sup>2</sup> The series sometimes complete, according to Van Denburgh.

<sup>3</sup> This is probably an individual abnormality in the specimen examined by me, as no mention is made by Van Denburgh of two postnasals.

<sup>4</sup> 4 series in one specimen out of 13, according to Van Denburgh.

series of small scales anteriorly. Ventral plates in 6 longitudinal series, only the outer keeled; 28 transverse series. Sides minutely granular. 42 plates and granules round the middle of the body. Præanal plate rather small, bordered by one semi-circle of small smooth plates.

Upper surface of limbs with rhombic keeled scales. 4 femoral pores on each side.<sup>1</sup> 23 lamellar scales under the fourth toe.

Caudal scales strongly keeled and shortly mucronate, the whorls alternately a little longer and shorter, the fourth containing 18 scales.

Olive-brown above, the dorso-lateral area (two rows of plates) lighter; two blackish streaks, formed of spots close together, along the middle of the back; a blackish lateral band, from the nostril, through the eye and involving the upper half of the ear-opening, to the base of the tail, dotted with whitish on the body; reproduced tail reddish. Lower parts white.

The specimen selected as the type is thus described by Van Denburgh:—

“The colour above is greenish olive, becoming lighter yellowish olive on the limbs and tail. The sides are dark olive brown. A light line, edged above with dark brown, starts at the nostril, crosses the lower eyelid, the lower part of the ear-opening, and fades away above the axilla. The upper labials, dorsals, limbs and tail are dotted or spotted with dark brown. The lower surfaces are greenish white, tinged with orange on the tail.”

Measurements, in millimetres.	♂
From end of snout to vent .. .. .	60
„ „ „ „ „ fore limb .. .. .	24
Head .. .. .	17
Width of head .. .. .	9
Depth of head .. .. .	7
Fore limb.. .. .	23
Hind limb .. .. .	32
Foot .. .. .	17

Habitat. This remarkable species was described from 13 specimens from Kan-shirei and Taipeh, Formosa; one of these is now preserved in the British Museum. It has since been reported from Southern China, near Canton, by T. Vogt.

*Tachydromus chinensis*, T. Vogt, Sitzb. Ges. Nat. Fr. Berl. 1914, p. 98, is said to be similar to *P. kuehnei*, but there are only 3 pairs of chin-shields and the ventral plates are obtusely keeled. 3 femoral pores on each side.—Northern parts of the Province Kuangtung, Southern China.

### *Apeltonotus*, g. n.

Head-shields normal. Nostril pierced between the nasal, a postnasal, and the first upper labial. Lower eyelid scaly. Collar distinct. Dorsal scales small, hexagonal, subimbricate, keeled; ventral plates obtusely pointed, imbricate, of median rows smooth or faintly keeled, of outer row strongly keeled. Digits compressed, with

<sup>1</sup> Of the 13 types and co-types, 8 have 4 pores, 4 have 5, and 1 has 4—5.—3 or 4 pores in specimens from Canton according to Vogt.

smooth scales inferiorly. Femoral pores reduced to 2 or 3 on each side. Tail very long, cylindrical.

Loo Choo Islands.

This genus is very closely allied to *Tachydromus*, to which it stands in the same relation as *Bedriagaia* to *Poromora* among African genera. Could we find a lizard combining the dorsal scales of *Apeltonotus* with the other characters of *Tachydromus amurensis*, we would have the connecting link between the latter and *Lacerta vivipara*.

### 1. *Apeltonotus dorsalis*, Stejneger.

*Tachydromus dorsalis*, Stejneger. *Smithson. Quart. Misc. Coll.* xviii, 1905, p. 294, and *Herp. Japan*, p. 229, fig. (1907); Van Denb. *Proc. Calif. Ac.* (4) iii, 1912, p. 242,

Body slender, feebly depressed. Head  $1\frac{3}{4}$  times as long as broad, its depth equal to the distance between the centre of the eye and the tympanum, its length about 4 times in length to vent; snout acutely pointed, a little longer than the postocular part of the head, with sharp canthus and vertical, concave loreal region. Pileus  $2\frac{1}{4}$  times as long as broad. Neck a little narrower than the head. Limbs slender, with very long digits; the hind limb reaches the shoulder in males, not beyond the axil in females; foot a little longer than the head. Tail 3 to  $3\frac{1}{2}$  times as long as head and body.

Nostril between 3 shields; nasals forming a very short suture behind the rostral;<sup>1</sup> frontonasal much longer than broad; præfrontals forming an extensive suture; frontal as long as its distance from the end of the snout, about  $1\frac{2}{3}$  times as long as broad, narrower behind than in front; parietals about  $1\frac{1}{2}$  times as long as broad, outer border convex; interparietal small, narrow, a little longer than the occipital; 3 or 4 supraoculars, if 4, first small and granular, followed by a series of granules separating the supraoculars from the superciliaries, which are 5 in number. Rostral barely entering the nostril; a single postnasal; anterior loreal much smaller than the second; 4 upper labials, rarely 5 or 3, anterior to the subocular. Temporal scales small, strongly keeled; an enlarged, keeled anterior upper temporal shield; a short and very narrow tympanic shield.

4 pairs of chin-shields,<sup>2</sup> the 3 anterior in contact in the middle; gular scales granular anteriorly, gradually enlarged, imbricate, and keeled towards the collar, 26 in a straight median line; collar-plates large, pointed, keeled.

Scales strongly keeled, those on the back larger, about 5 corresponding to 3 ventral plates; 28 to 30 scales across the middle of the body. Ventral plates in 6 longitudinal series, the outer strongly keeled, the others smooth or feebly keeled; 24 transverse series. Præanal plate large, smooth, bordered by a semicircle of small plates, or with two small plates on each side.

Scales on upper surface of limbs large, keeled, larger than the dorsals, on forearm smooth and forming transverse plates. Usually 2, rarely 3, femoral pores on each side. 29 lamellar scales under the fourth toe.

<sup>1</sup> Rostral in contact with the frontonasal in one specimen examined by Van Denburgh.

<sup>2</sup> Van Denburgh notes one specimen as having 4 shields on one side and 5 on the other.



Caudal scales strongly keeled, twice as large as largest dorsals, 16 in the fourth whorl.

Bluish slate above, probably greenish in life; a black line from the nostril through the eye to the centre of the ear-opening; a pale, probably yellowish, streak below this from the nostril through the lower eyelid to the lower border of the ear-opening; lower parts greenish or yellowish white.

Measurements, in millimetres.						♂	♀
From end of snout to vent	..	..	..	..	..	64	56
Head	..	..	..	..	..	16	14
Width of head	..	..	..	..	..	9	8
Fore limb	..	..	..	..	..	25	23
Hind limb	..	..	..	..	..	35	31
Tail	..	..	..	..	..	220	195

The above description is compiled from those of Stejneger and of Van Denburgh and from one of the co-types received from the U.S. National Museum.

Habitat. Ishigaki Island, in the Southern Group of the Loo Choo or Riu Kiu Archipelago. The type is preserved in the U.S. National Museum.

EXPLANATION OF PLATE XLVI.

- FIG. 1.—*Tachydromus amurensis*. ♀, Chabarovka.  
,, 2.—*Lacerta vivipara*. ♀, Scotland.  
,, 3.—*Tachydromus wolteri*. ♂, Seoul.  
,, 4.—*Tachydromus formosanus*. ♂, Taipeh.  
*a.* Side view of head. *b.* Upper view of head. *c.* Lower view of head. *d.* Lower view of posterior part of body and hind limb.  
Whole lizards natural size, details magnified 2 diameters.

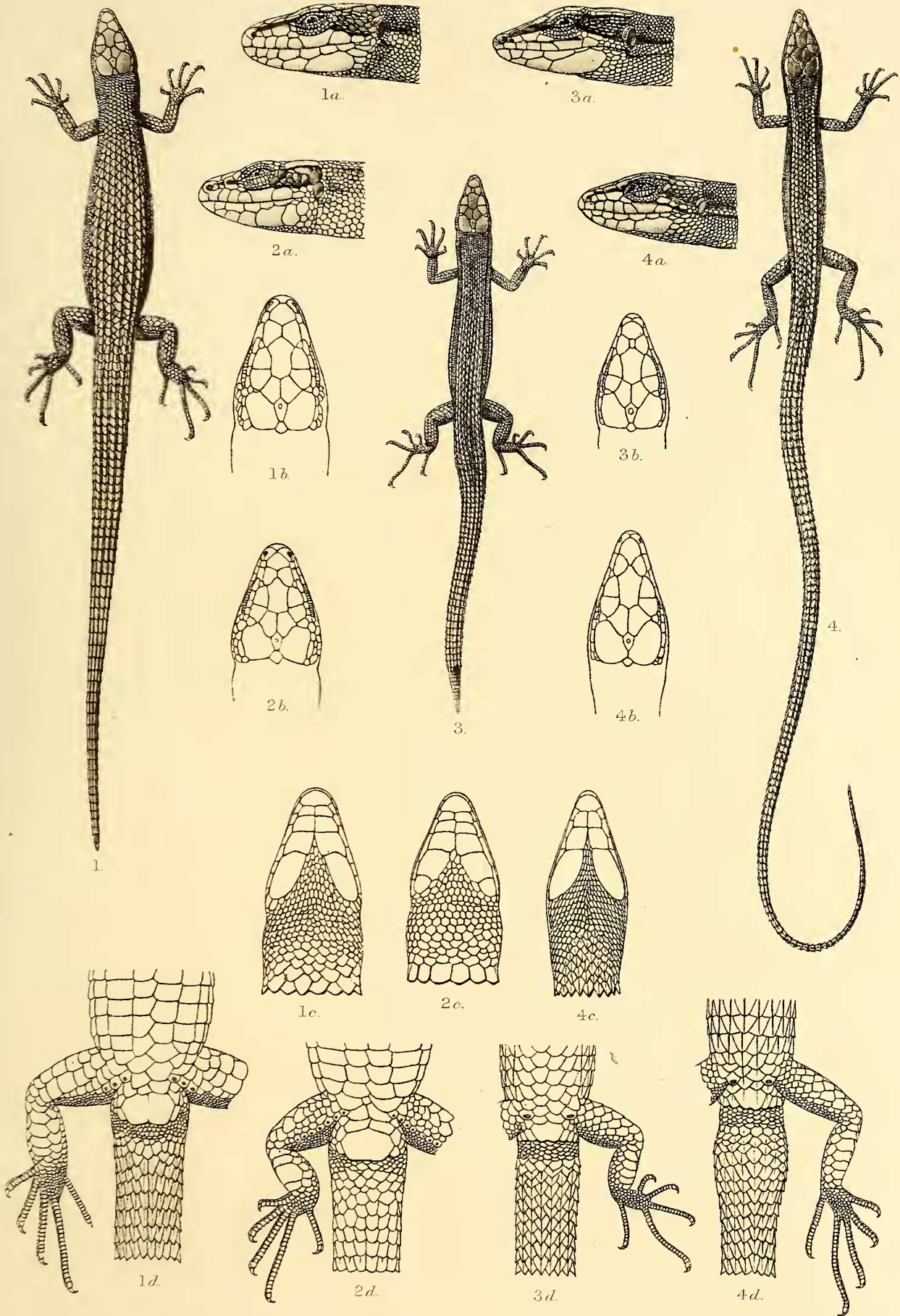


Fig. 1. *Tachydromus amurensis*.  
Fig. 3. *Tachydromus wolteri*.

Fig. 2. *Lacerta vivipara*.  
Fig. 4. *Tachydromus formosanus*.



EXPLANATION OF PLATE XLVII.

- FIG. 1.—*Tachydromus khasiensis*. ♀, Khasi Hills.  
,, 2.—*Tachydromus sauteri*. ♂, Coshun.  
,, 3.—*Platyplacopus kuehnei*. ♂, Kanshirei.  
*a.* Side view of head. *b.* Upper view of head. *c.* Lower view of head. *d.* Lower view of posterior part of body and hind limb. *e.* Lower surface of foot.  
Whole lizards natural size, details magnified 2 diameters.

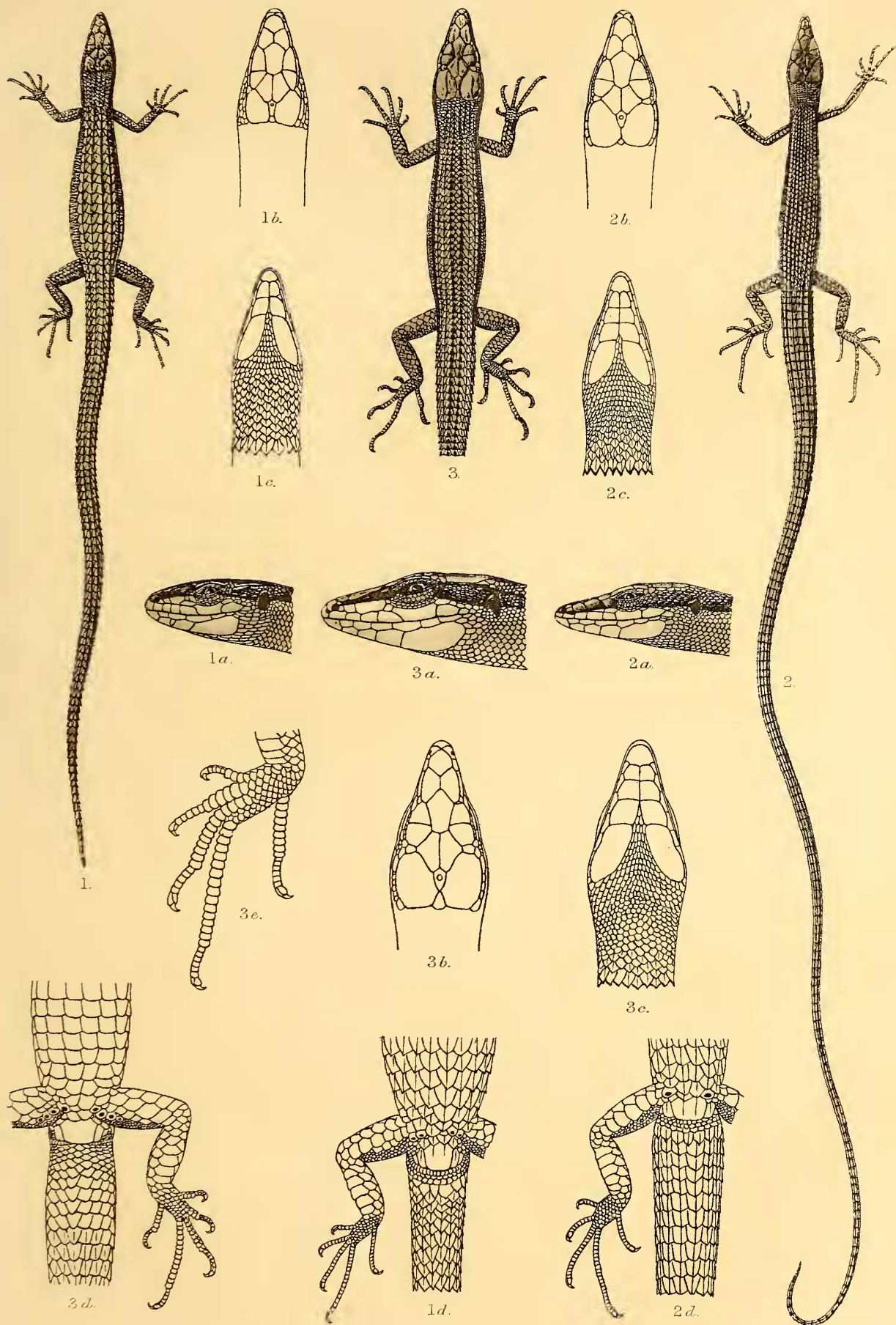


Fig. 1. *Tachydromus khasiensis*. Fig. 2. *Tachydromus sautéri*. Fig. 3. *Platylacopus kuehnei*.